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Engineering Institute Seminar

Elizabeth J. Cross
University of Sheffield, United Kingdom

"Econometric Tools For Engineering Applications; Cointegration Analysis for Nonstationary Time Series"

Tuesday, May 8, 2012
1:00 - 3:00 PM
Los Alamos Research Park—TA-3, Bldg. 4200, Suite 101A,
Access Grid Conference Room (1st floor)

Abstract: Econometricians are generally concerned with modelling the behaviour of economic variables, a large number of which are nonstationary in nature and exhibit deterministic or stochastic trends. Of concern in this talk is how the well developed analysis techniques/ theories from the field of econometrics may be of use for engineering applications.

Of particular interest here is the concept of cointegration, which is a growing area of interest within econometrics used for the analysis of multivariate nonstationary time series. If two or more nonstationary variables are cointegrated, then it is possible to find a linear combination of them that is stationary. The idea has recently been adapted for application to Structural Health Monitoring data, where the cointegration property of damage sensitive features is exploited in order to remove confounding influences from environmental and operational variations.

The talk will aim to introduce some of the sophisticated econometric developments that may find use in an engineering environment, along with some of the mathematical background material necessary to utilize these econometric tools.

Biography: Elizabeth Cross is a Research Associate in the Dynamics Research Group at the University of Sheffield. She is currently working on machine learning techniques for load predictions in landing gear, whilst finishing off her PhD which focuses on SHM and the problem of the confounding influence of environmental and operational variations. Prior to her PhD studies she studied for a Mathematics BSc, awarded in 2007, and a Mechanical Engineering MSc, awarded in 2008, both at the University of Sheffield.

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Contact Chuck Farrar at farrar@lanl.gov for further assistance.
Seating is limited.
Hosted by the Engineering Institute (EI)